



## Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife

Route 135, Westborough, MA 01581

(508) 389-6360 / fax (508) 389-7891

www.nhesp.org

## Black Ash Swamps

State Status: None

Federal Status: None

**Description:** This plant community is a deciduous swamp forest characterized by a high diversity of tree species, including black ash and red maple. These swamps are associated with groundwater seepage and are relatively wet with seasonal inundation. Black Ash Swamps have a relatively diverse herbaceous layer under a canopy of trees with many tall shrubs in the understory.

**Environment:** Black ash swamps occur in a wide variety of topographic and hydrologic settings, usually with significant groundwater seepage influence. The rich composition and diversity of plants in this community may indicate weakly acidic to circumneutral conditions. They often occur in depressions at or near the headwaters of streams, especially in the northern part of the state. Occasionally they occur on sloping edges of river floodplains adjacent to upland slopes where seepage input occurs, or as small seepy pockets within a larger matrix of red maple swamps. The surface topography is hummock and hollow with fluctuating surface water levels in between the hummocks.

More information is needed on the soils and geology of this community type. The degree of groundwater influence, the concentration of dissolved minerals in the groundwater, and the frequency and duration of flooding appear to be variable among different black ash swamps. These factors significantly influence the vegetative composition growing in a swamp.

**Characteristic Species:** Red maple (*Acer rubrum*) and black ash (*Fraxinus nigra*) are usually prominent in the canopy or sub-canopy of these swamps. The black ash trees do not usually grow very large in these wet environments and are subject to windthrow. Other common associates in the canopy include white pine (*Pinus strobus*), hemlock (*Tsuga canadensis*), and yellow birch (*Betula alleghaniensis*) which vary in abundance from site to site. The subcanopy is often well-developed and is characterized by black ash and often American elm (*Ulmus americana*).

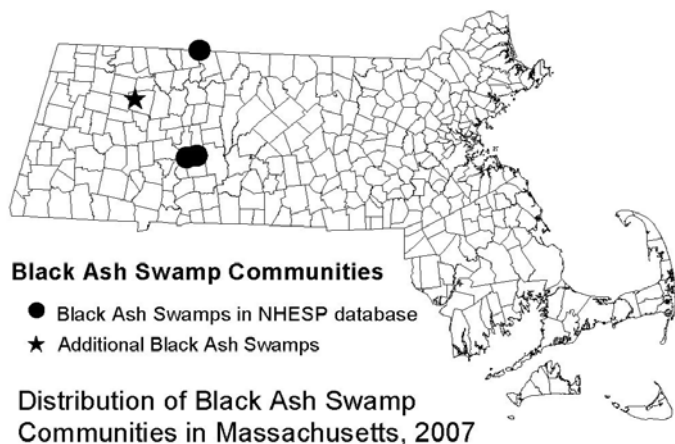
The shrub layer is variable in cover although relatively high in species diversity. The most characteristic shrub encountered in these swamps is winterberry (*Ilex*



Illustration of black ash swamp by Libby Davidson from *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* by Elizabeth H. Thompson and Eric R. Sorenson. Vermont Department of Fish & Wildlife and The Nature Conservancy. 2000.

*verticillata*). Other common associates include highbush blueberry (*Vaccinium corymbosum*), poison-sumac (*Toxicodendron vernix*), speckled alder (*Alnus incana* ssp. *rugosa*), and spicebush (*Lindera benzoin*). Occasional shrubs include witch hazel (*Hamamelis virginiana*), silky dogwood (*Cornus amomum*), northern arrow-wood (*Viburnum dentatum* var. *lucidum*), and mountain holly (*Nemopanthus mucronatus*). In addition, most of the species that occur in the tree canopy are also present in the shrub layer.

The herbaceous layer is lush and diverse. Cinnamon fern (*Osmunda cinnamomea*) and skunk cabbage (*Symplocarpus foetidus*) are usually the most abundant herbaceous species present. One of the most striking characteristics of this swamp forest is the high coverage of ferns, including royal fern (*Osmunda regalis* var. *spectabilis*), marsh-fern (*Thelypteris palustris*), and sensitive fern (*Onoclea sensibilis*), in addition to cinnamon fern. Other herbaceous associates include jewelweed (*Impatiens capensis*), swamp saxifrage (*Saxifraga pennsylvanica*), water avens (*Geum rivale*), goldthread (*Coptis trifolia*), tussock sedge (*Carex stricta*), fowl meadow-grass (*Glyceria striata*), and delicate sedge (*Carex leptalia*). The micro-topography is hummock and hollow with mosses (*Sphagnum* spp.), particularly on the hummocks. No state-listed rare plant species are known from this community type.



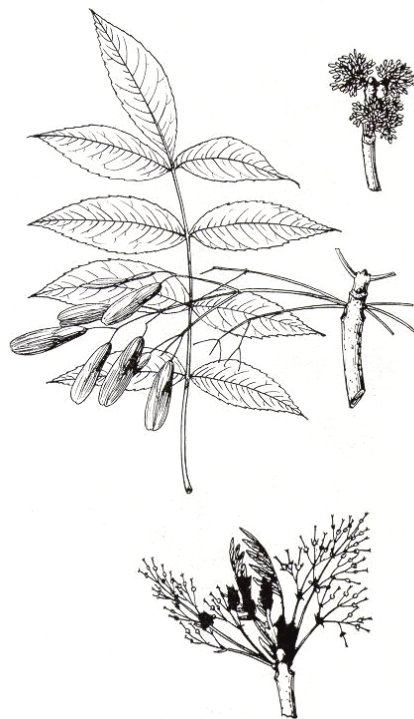
**Range:** In Massachusetts this community type is not common, although it is widespread further north in Vermont and New Hampshire. Black ash swamps appear to be located primarily in north-central and eastern portions of Massachusetts. More research is needed to determine the actual range and variation of Black Ash Swamps in the state.

**Related Communities:** Black ash grows in a variety of settings in Massachusetts and the definition of this community type is not always clear. Another community with a significant black ash component is the Black Ash-Red Maple-Tamarack Calcareous Seepage Swamp. This type tends to have a more diverse herbaceous component, including calcareous indicator species, occasional tamarack (*Larix laricina*) in the overstory and ironwood (*Carpinus caroliniana*) in the sub-canopy.

Black Ash Swamps are a variant of Red Maple Swamps and are sometimes very similar to them in overall species composition. One principal difference is in the proportion of red maple vs. black ash (and other canopy species) in the two community types. Other communities that sometimes contain black ash as minor components are Hemlock-hardwood Swamps and Spruce-fir Boreal Swamps. Ongoing studies in Massachusetts and surrounding states are sorting out the similarities and distinctions among these community types.

**Management Considerations:** Logging, development, pollution, exotic species, and changes in hydrology are the most common threats to Black Ash Swamps. Due to the wet organic soils in this community it is important to avoid logging and the use of heavy machinery, except during frozen or very dry conditions. Swamps that are adjacent to developed areas may be affected by changes in hydrology, degraded by stormwater and wastewater discharges or invaded by exotic flora. Sedimentation from logging or construction activities is a significant threat to the ecological integrity and composition of Black Ash Swamps. In addition to human alterations, beavers (*Castor canadensis*) can cause significant flooding and subsequent changes in community type from a forested wetland to open water, marsh or shrub swamp.

The use of undisturbed natural buffers around the best occurrences of Massachusetts Black Ash Swamps is encouraged. Natural wooded buffers reduce the potential for impacts to the swamps from surrounding changes in the environment and will help protect habitats for wildlife that are dependent upon these swamps for food, cover, breeding, or nesting sites.



**Black Ash**

Illustration by C.E. Faxon from *Native and Naturalized Trees of Massachusetts*, Cooperative Extension Service, University of Massachusetts, Amherst. 1978.